Spot Hysplit Function – Smoke Forecasts

Background:

- Air Resources Laboratory (ARL) has an established feature within any NWS Spot Forecast which allows a user to receive HYSPLIT trajectory forecasts via their email box. The HYSPLIT model is a complete system for computing simple air parcel trajectories to complex dispersion and deposition simulations.
- This feature was developed in response to repeated customer requests for more smoke forecast information.
- Benefits: This provides an easy method for NWS customers to receive smoke forecast information by taking advantage of the base information that is already input into the spot request form. The HYSPLIT trajectories can be used for any purpose (i.e. HAZMAT, smoke, etc.).

HYSPLIT Requests:

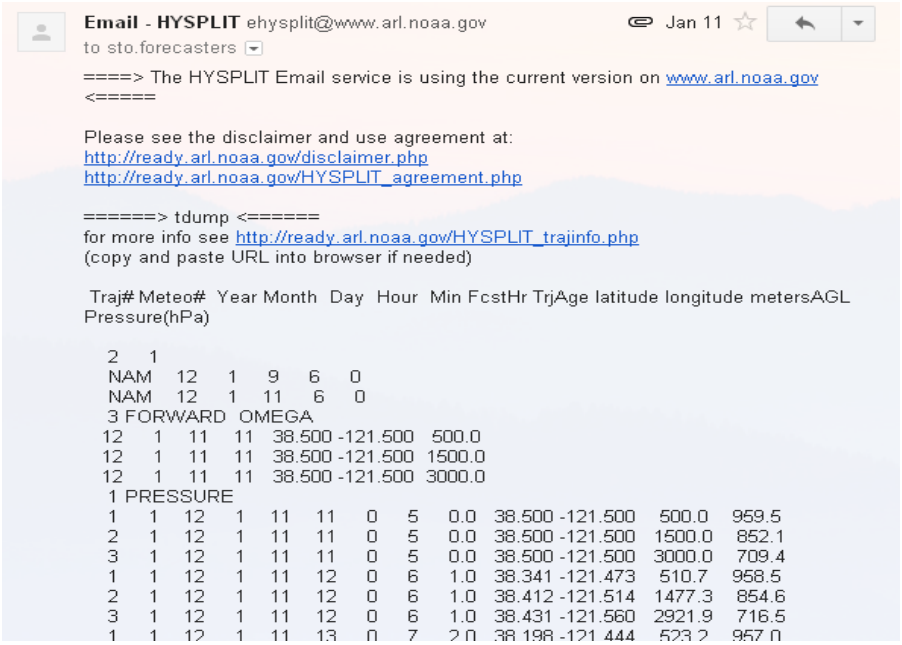
1. NWS customer initiates a spot forecast request.
2. Input the following into the "Remarks" section of the form...
   a. **The word "Hysplit" (Hysplit is not case-sensitive).**
   b. **An email address**

   ***Note: The script looks for the word "hysplit"…make sure it is spelled correctly**

   ***Note: This will work for all email domains, not just .gov**
3. Servers at ARL receive the email, create hysplit graphics and tables, and email it to the customer.

HYSPLIT Trajectory Product

- The trajectories forecast where a parcel would travel from a given latitude/longitude starting at a specific elevation.
- For technical details of HYSPLIT trajectories, visit the HYSPLIT Tutorial.
- The following image is an example of the email message. Scroll to the bottom (not on image) and click the GIF or KMZ graphic. KMZ will open up in Google Earth.



Email - HYSPLIT ehysplit@www.arl.noaa.gov Jan 11

to sto.forecasters

=====> The HYSPLIT Email service is using the current version on www.arl.noaa.gov <======

Please see the disclaimer and use agreement at:
http://ready.arl.noaa.gov/disclaimer.php
http://ready.arl.noaa.gov/HYSPLIT_agreement.php

=======> tdump <=======
for more info see http://ready.arl.noaa.gov/HYSPLIT_trajinfo.php
(copy and paste URL into browser if needed)

Traj# Meteo# Year Month Day Hour Min FcstHr TrjAge latitude longitude metersAGL Pressure(hPa)

```
  2    1
  NAM   12    1    9    6    0
  NAM   12    1   11    6    0
  3 FORWARD  OMEGA
 12    1   11   11  38.500 -121.500  500.0
 12    1   11   11  38.500 -121.500 1500.0
 12    1   11   11  38.500 -121.500 3000.0
  1 PRESSURE
  1    1   12    1   11   11    0    5    0.0  38.500 -121.500   500.0   959.5
  2    1   12    1   11   11    0    5    0.0  38.500 -121.500  1500.0   852.1
  3    1   12    1   11   11    0    5    0.0  38.500 -121.500  3000.0   709.4
  1    1   12    1   11   12    0    6    1.0  38.341 -121.473   510.7   958.5
  2    1   12    1   11   12    0    6    1.0  38.412 -121.514  1477.3   854.6
  3    1   12    1   11   12    0    6    1.0  38.431 -121.560  2921.9   716.5
  1    1   12    1   11   13    0    7    2.0  38.198 -121.444   523.2   957.0
```

Output Maps

- The products consist of a 3-level trajectory forecast. Starting at 500 (red triangles), 1500 (blue squares), and 3000 meters (green circles) above ground level.
- The figure represents a typical product from HYSPLIT. For these maps, the following items are identical:
  (a): The source location is SOUTH TEXAS, TEXAS, UNITED STATES;
  (b): It is located at latitude 28.80 degrees N and at longitude 96.05 degrees W;
  (c): The hypothetical release started at 1200 UTC on 10 June 2010.
- The image below has been marked with red coded letters in this document only to explain the meaning of each section. A description follows:
  1: Identification of the NOAA HYSPLIT transport model used in the calculation.
  2: Trajectory start date/time in UTC.
  Note: UTC is +8 hrs ahead of PST and +7 hrs ahead during PDT. (Ex. 12 UTC = 4 am PST)
  3: The latitude and longitude of the trajectory start (fire) location in degrees. Single letter abbreviations are used for East, West, North and South.
  4: The time at which the forecast model was initialized and an abbreviated name for the meteorological model: NAM, GFSG (Global Forecast System model).
  5: More information, including the trajectory start heights, and a label indicating the trajectory was requested via the Spot webpage.